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ABSTRACT

The guide, developed as part of an exemplary program for junior high school students, presents a plan for science and mathematics activities for grades seven and eight which aims at researching occupations which stem from experience students obtain in the general classroom curriculum. The unit is designed to operate in three stages: preparation of career backgrounds with students, completion of the career description form after the research field trip, and completion of the occupational interview sheets and reports to the class. The guide includes lists of objectives, preparation steps, activities (general and specific for science and math), and a discussion of results and evaluation. It also includes a sample interview sheet and career card. (JR)

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CAREER EDUCATION

SCIENCE - MATH
CAREER EDUCATION
GRADES 7-9

A CAREER DEVELOPMENTAL PROGRAM

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CAREER AWARENESS
SELF AWARENESS
APPRECIATION & ATTITUDES
DECISION MAKING
SKILL AWARENESS, BEGINNING COMPETENCE
ECONOMIC AWARENESS
EMPLOYABILITY SKILLS
EDUCATIONAL AWARENESS

White Bear Lake
Public Schools

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SCIENCE - MATH PROJECT

JUNIOR HIGH

by

Terry Lewis

Kathy Cochran

CAREER DEVELOPMENT

Grades 7 - 9

An Exemplary Program
in
Career Education

Funded under the Provisions of Part D
of the Vocational Education Amendment of 1968

Independent School District #624
White Bear Lake, Minnesota

Ernest M. Thomsen, Superintendent
Ron Johnstone, Director Vocational Education

1972 - 73

TABLE OF CONTENTS

INTRODUCTION.....1

OBJECTIVES AND PURPOSE.....2

PREPARATION.....3

ACTIVITIES.....4

EXAMPLES OF MATH ACTIVITIES.....5

EXAMPLES OF SCIENCE ACTIVITIES.....6

RESULTS AND EVALUATION.....7

INTERVIEW SHEET.....F-1

CAREER CARD.....F-2

JUNIOR HIGH MATH-SCIENCE CAREERS

In order to give career insight related to 7th and 8th grade math-science objectives we designed the following program. Our goal in this unit is to research occupations which stem from experience the students have had in our general classroom curriculum. We operated in three stages.

1.) Preparation of career backgrounds with students.

2.) The research field trip to complete the description form.

3.) Completion of the interviews and reports to class.

Reviewing the work of the students we were satisfied with the results of our original unit, but have made some suggestions for its future plans which we intend to use next year.

OBJECTIVES AND PURPOSE

1.) Student will experience certain tasks related to area of science or math in which he has expressed interest.

2.) Students will explore three careers related to field in which they have done work in regards to occupational requirements, educational development, and the relationship between career choice and reward and personality required for career.

3.) Students will gather and organize information on the three careers they have looked at.

4.) Student will be responsible for informing the rest of the class about one career he researched and informing them about an interview with a person in this field

PREPARATION

1.) Teachers checked out all possible information on careers; such as occupation charts, and library information that the children could use.

2.) Teachers discussed objectives with students involving them in discussions about types of careers they though fit these interest areas.

3.) Teachers used the White Bear Lake Occupation Census Sheet to find persons possible for interviews. We discussed how to use this material with the students.

4.) Teachers reviewed use of library, Minneapolis Public Library specifically, because of the specialty areas there.

5.) Teachers held discussion on how to conduct an interview.

A) How to contact the person
   1. Polite, well stated telephone conversation
   2. Well formed concise letter contact
B) Recording interview results
C) Reporting interview to class

ACTIVITIES

1) Given a large supply of books on experiments dealing with life sciences, students select and perform any experiment which appeals to them. They must perform and write up results of experiments according to scientific method. (Hypothesis, procedure, observations, conclusions)

2) Students should do research in the public library from books, magazines, and newspapers on three careers related to the type of work they have done in science or math.
   A) Career lists and posters are available to students in classroom.
   B) Research should be done along following lines:
      1) Job title
      2) Duties
      3) Education needed (training needed)
      4) Personality required
      5) Rewards (monetary and other)

   (See sample career card F-2)

3) Information should be put on note cards kept on file by teacher for future use.

4) Field trip will be taken to public library.

5) Students will select one career in which they have keenest interest and conduct an interview with someone in that field.
   A) Interview sheet should be filled out by student during course of interview. (See sample interview sheet)

6) Teacher should organize student's interview reports into clusters which go together and in this way can have students report to class on particular careers as related subjects come up throughout the year. This should eliminate boredom on the part of the rest of the students if they had to sit and listed to reports all at once, and should help motivation for certain units throughout the year.

RELATED ACTIVITIES FOR LATER USE

1) Career cards will be kept on file in library and updated and more cards added by future classes.

2) A bulletin board will be put in school hall and next year teams of students will put up a bulletin board on the science or math career of the week. Career cards and interview sheets will be resources for these boards. This way the entire school will have an opportunity to see career information.

EXAMPLES OF MATH ACTIVITIES

Given objectives of the math curriculum and specific learning areas and occupations chart, the students are to set up a chart of jobs which may fit under each learning area.

EXAMPLE:

1. Money - Percent Formula

   OCC: Bookkeeping
   Accounting
   Tax expert
   Banking

2. Measurement

   OCC: Mechanics
   Scientists
   Physicist
   Chemist
   Engineering

3. Geometry

   OCC: Architect
   Tool designer
   Die caster
   Drafter

4. Base Number System & Codes

   OCC: Telephone
   Telegrams

5. Arithmetic

   OCC: Clerks
   Cashiers

6. Education

   OCC: Math Teacher
   High School
   Elementary
   College
   Curriculum developer

See # 2 on activities sheet for following steps.

EXAMPLES FOR SCIENCE ACTIVITIES

1) Blood typing

2) Chemical analysis by flame test

3) Model constructing of cells, ears human body, etc

4) Analysis of food as to protein, fat, carbohydrate content

5) Growth of bacteria

6) Development of terrarium

7) Training of gerbils or salamanders

8) Temperature effects on germination

9) Air pressure effects

10) Solubility of different solutes in diffrent solvents

See # 2 on activities sheet for following steps.

RESULTS AND EVALUATION

1) Career cards were produced by students. These were then set up in a file system for our library.

2) Interviews were conducted by students. Due to timing only a few were reported in class.

3) Field trip to library completed in one day trip. (Long trip)

4) Many students choose occupation of family member. We found they have a much greater understanding of their parent's job and how they achieved their present working level, besides just knowing more about a specific job. Those who choose to talk with a person unknown to them were very nervous to begin with, but now are confident in talking with an adult and conducting a structured conversation.

5) Teachers conducting this feel that although students have reached objectives in knowing about careers, the real values of the project are the insights the kids now have about the working world in general.

INTERVIEW SHEET

Student Name_____
Person Interviewed_____
Occupation_____
Date of Interview_____

1) What are some of your typical activities?_____

2) What are the hours and working conditions?_____

3) What special interests are involved? (What made you choose this job?)_____

4) Where else can this type of job be found?_____

5) What kind of training did you need?_____

6) What are your chances for getting ahead?_____

7) Is traveling involved in this job or helpful to it?_____

8) What do you like most about your job?_____

9) What do you like least about it? (Are there any disadvantages to you job?)_____

10) What made you decide to pursue this career?_____

11) What kind of physical characteristics are required for this job?_____

12) What kind of personality do you think is best suited for this job?_____

13) What courses in high school would be helpful to me if I wanted a career like yours?_____

14) Is there anywhere you can gain experience in this job before entering it?_____

15) Is it hard to get a job in this field?_____

F-1
INTERVIEW SHEET

(Cont-d)

16) What other rewards are there in your job besides money?

_____

17) How much freedom do you have to "do your own thing"?

_____

18) Is there a lot of pressure involved in your job?_____

_____

19) What made you choose the particular company that you work for?

_____

20) How did you go about getting your job?_____

_____

CAREER CARD

1) Job title _____

2) Duties _____

3) Education or training required _____

4) Equipment used (need to know how to use)

5) Conditions

Indoor - desk
stand up

Outdoor

Stationary (same building 8 to 5 weekly)

Travel

6) Special science or math education apparently needed for this job.

_____

(Use 5 X 8 card for filing)